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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,311	11/08/2001	Masajirou Inoue	106145-00029	5180
4372	7590	06/16/2005	EXAMINER	
ARENT FOX PLLC 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,311

Applicant(s)

INOUE ET AL.

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3-21-05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 21, 2005 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by Matsukawa et al.
(U.S. Pat. 6,153,326)

The examiner notes that claim 10, in reciting “a seal” in its preamble, is interpreted as a stand-alone independent claim; the extent to which this seal is for a fuel cell as recited in claims 1-4 has not been given patentable weight, as such language is construed as a statement of intended use not further limiting the claim to a particular structure.

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For the reasons set forth in the prior Office action, Matsukawa et al. teaches a liquid thermosetting sealing agent having a viscosity of 10^3 to 10^4 poise, equivalent to 1,000 to 10,000 Pa.S. (col. 2 line 30-38) As to the seal being "formed by thermally curing the liquid thermosetting sealing agent at a temperature in the range of from 100 to 130°C over a period of from 1 to 5 hours", this process limitation has not given patentable weight as the limitation does not give breadth or scope to the product claim. Notwithstanding, the predetermined temperature for thermosetting via injection molding is 100°C to 180°C. (col. 2 line 43-49).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 6-8 are rejected under 35 U.S.C. 103(a) as obvious over Steck et al. (U.S. Pat. 5,464,700) in view of Matsukawa et al. (U.S. Pat. 6,153,326).

As discussed in the prior Office action, Steck et al. teaches a fuel cell having separators [22, 24] and a membrane electrode assembly [30] in which the gaps between the separator and the membrane electrode assembly are tightly sealed with a seal, "[t]he portions 12c, 14c of the gasketing material layers 12, 14 overlapping the electrodes 18, 20 are now compressed between the respective electrodes 18, 20 and the respective separator plates 22, 24". (Figure 4, col. 6 line 3-8, col. 5 line 64 et seq.) A plurality of single cell fuel cells collectively makes up a solid polymer fuel cell (SPFC) stack. (col. 1 line 25)

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Steck et al. does not explicitly teach a liquid thermosetting sealing agent with an application rate preset depending on the viscosity, width and height of the resulting seal. However, Matsukawa et al. additionally teaches a liquid thermosetting sealing agent having a viscosity of 10^3 to 10^4 poise, equivalent to 1,000 to 10,000 Pa.S. (col. 2 line 30-38) With respect to the application rate, Matsukawa et al. teaches that an injection pressure of 100 to 500 kgf/cm² allows for minimization of bubbles and fins. (col. 2 line 42-48) As to the width and height of the resulting seal, the thickness of the seal is asserted as being predetermined by the dimensions of the injection mold. (col. 3 line 50 et seq.).

As to the viscosity, absent of unexpected results it is asserted that this is an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) For the reasons already of record, too low a viscosity results in undesirable ductility while too high results in inadequate fluidity. (col. 2 line 34-37) As to the hardness of the thermosetting sealing agent it is reasonably presumed based on the viscosities being the same that the sealing agent in Matsukawa et al. inherently has the same hardness level as claimed, absent of a showing by applicant that the claimed invention distinguishes over the reference. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990)

The skilled artisan would find obvious to employ the liquid thermosetting sealing agent of Matsukawa et al. in Steck et al.'s invention, motivation for the combination coming from Matsukawa et al., "[t]he composite of the present invention may be used... preferably as a separator of a fuel cell (a solid polymer type fuel cell)". (col. 3 line 1-4)

The examiner notes the amendment to the present claims, which further defines the claimed invention so that the claimed seal is formed by applying the liquid thermosetting sealing

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agent into gaps between the separator and the membrane electrode assembly. This feature is not given patentable weight as the limitation does not give breadth or scope to the product claim. The claimed product, at least upon completed assembly, appears to be the same or similar to the prior art product insofar as being a seal in a fuel cell between the separator and the membrane electrode assembly. Figure 3 of Steck et al. is considered to show "gaps" between the membrane electrode assembly [30] and the separator plates [22, 24] (shown in Figure 4). In Figure 4, note how such gaps between the separator and the membrane electrode assembly is tightly sealed to the extent that the gasketing material is resultantly compressed. (col. 5 line 27-33)

Applicant's arguments have been fully considered, however they are not found persuasive. Arguments against Matsukawa et al. and Steck et al. appear to be directed to the reference being a primary reference teaching and secondary reference teaching, respectively. Conversely, in the present Office action, Steck et al. in view of Matsukawa et al. is set forth as a prima facie ground of rejection. Applicant is respectfully reminded to submit any arguments for nonobviousness by addressing the combination of the references and not its individual teachings.

Applicant's argument for "extreme" differences between the cited prior art and the claimed invention appears to be premised in the claimed sealing agent sealing the gap between the separator and the MEA. By sealing "the gap," it is understood that applicant is arguing a positive presence of such gap in the final structure. Applicant's disclosure, particularly Figure 11 which shows the alleged inventive seal [q1], appears to show that the gap is indeed retained upon sealing. In contrast, the examiner will concede that the gap in Figure 3 of Steck et al. is absent in the final structure, which is shown in Figure 4. The scope of the present claims, however, does not recite this structural distinction.

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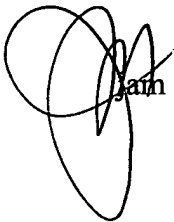
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Julian



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER